

In the Claims

1. A conveyor for intended use in positioning in a gap between the ends of first and second adjacent conveyors and including an endless belt or chain having a conveying surface and an inner surface, comprising:

a bed for supporting the endless chain;

5 a drive structure for driving the chain relative to the bed in a conveying direction;

first and second idler structures spaced apart in the conveying direction for assisting the chain in making the transition to and from the bed to the drive structure;

10 a frame for supporting the drive structure, the frame being pivotally mounted for allowing the drive structure to engage the inner surface of the belt or chain;

whereby the engagement with the drive structure serves to tension the belt or chain in the conveyor.

2. The conveyor according to claim 1, wherein the bed includes rounded leading and trailing edges for assisting the chain in making the transition between the forward and the return run.

3. The conveyor according to claim 1, wherein the frame is supported by an end of one of the first or second conveyors.

4. The conveyor according to claim 3, wherein the drive structure is a support shaft extending between first and second spaced frame members forming the frame and includes a plurality of gang-mounted sprockets for

engaging and driving the chain.

5. The conveyor according to claim 1, wherein the drive structure is driven by a drive unit associated with the corresponding first or second conveyor from which the frame members are supported.

6. The conveyor according to claim 4, wherein the support shaft includes a driven sprocket for engaging a drive chain or belt driven by a sprocket carried by a portion of a drive shaft extending from a drive unit associated with the corresponding first or second conveyor from which the
5 frame members are supported.

7. The conveyor according to claim 4, further including means for urging the support shaft away from the inner surface of the chain.

8. The conveyor according to claim 7, wherein the urging means is a constant force spring for engaging a stub shaft projecting from each of first and second frame members comprising the frame.

9. The conveyor according to claim 1, wherein each idler structure is a roll.

10. The conveyor according to claim 9, wherein each roll is rotatably supported.

11. The conveyor according to claim 9, wherein at least one of the rolls carries a plurality of O-rings seated in annular grooves.

12. The conveyor according to claim 1, wherein the chain is formed of a plurality of links interconnected in snap-fit engagement.

13. A conveyor for intended use in the gap between a discharge end of a first conveyor having a drive unit and the infeed end of a second conveyor and including an endless belt or chain, comprising:

a frame including a tensioner for tensioning the belt or chain;

5 a drive structure supported by the frame for driving the belt or chain;

a bed supported by the frame and supporting the belt or chain;

a pair of idler structures supported by the frame for engaging the belt or chain; and

10 a slave drive for transmitting rotational motion from the drive unit of the first or second conveyor to the drive structure for driving the belt or chain.

14. The conveyor according to claim 13, wherein the slave drive comprises a first sprocket connected to a drive shaft projecting from the drive unit, a second sprocket connected to the drive structure, and a transmission chain or belt extending around the first and second sprockets.

15. The conveyor according to claim 13, wherein the frame includes a pair of spaced side frame members, each including a slot for receiving the end of the idler structure associated with the tensioner, whereby the idler structure is capable of moving to and fro within the slots.

16. The conveyor according to claim 13, wherein the tensioner

comprises first and second frame members for supporting the drive structure and the frame includes third and fourth frame members for supporting the idler structures, the first and second frame members mounted for pivoting movement relative to the third and fourth frame members to urge the drive
5 structure into engagement with an inner surface of the belt or chain.

17. The conveyor according to claim 13, wherein the tensioner includes a spring for urging each end of the corresponding idler structure into engagement with the chain.

18. The conveyor according to claim 17, wherein the springs are constant force springs.

19. The conveyor according to claim 17, further including a locking device for use in holding the idler structure in a non-engaged position relative to the chain once the urging force supplied by the corresponding spring is overcome.

20. The conveyor according to claim 17, wherein the idler structures are rolls rotatably supported by the frame.

21. The conveyor according to claim 17, wherein the chain is comprised of a plurality of links in snap-fit engagement with one another.

22. The conveyor according to claim 13, wherein the tensioner includes a pair of spaced arms mounted for pivoting movement relative to first and second spaced frame members forming part of the frame, each arm

including a finger at one end for engaging the idler structure and a weight at
5 the opposite end for causing the arms to pivot such that the finger urges the
idler structure toward the adjacent chain.

23. A conveyor adapted to be positioned in the gap between a
discharge end of a first conveyor having a drive unit and the infeed end of a
second conveyor, comprising:

5 a frame;
a drive structure supported by the frame;
a bed supported by the frame;
a pair of idler structures supported by the frame;
an endless belt or chain associated with the bed, the idler
structures, and the drive structure and following a generally T-shaped path of
10 travel when driven, the belt or chain having a conveying surface; and
a tensioner for urging at least one of the idler structures into
engagement with a conveying surface of the belt or chain.

24. The conveyor according to claim 23, wherein the tensioner
includes a constant force spring for urging each side of the one idler structure
into engagement with the conveying surface.

25. The conveyor according to claim 23, wherein the orientation of
each constant force spring is reversible for urging the ends of the other idler
structure into engagement with the belt or chain.

26. The conveyor according to claim 23, wherein the chain is driven
at the same speed as a belt or chain of the first or second conveyor.

27. The conveyor according to claim 23, wherein the tensioner includes including a pair of spaced arms mounted for pivoting movement, each including a finger at one end for engaging the idler structure and a weight at the opposite end for causing the arms to pivot such that the finger
5 urges the idler structure toward the chain.

28. A conveyor adapted to be positioned in the gap between a discharge end of one conveyor having a drive unit and the infeed end of another conveyor and including an endless belt or chain, comprising:
a frame;
5 a drive structure supported by the frame;
a bed for supporting the chain, the bed including a transverse support structure supported by the frame;
a pair of idler structures supported by the frame;
a tensioner for urging one of the idler structures into
10 engagement with the belt or chain;
wherein the frame includes notches, each for receiving one end of the support structure associated with the bed when in a mounted position;
whereby the bed is easily moved from the mounted position when the belt or chain is slackened or removed.

29. The conveyor according to claim 28, wherein each notch is generally vertically oriented.

30. The conveyor according to claim 28, wherein the bed includes a wear structure for engaging an inner surface of the belt or chain, wherein the wear structure is comprised of a plurality of pieces of a plate-like, wear-

resistant material.

31. A conveyor adapted to be positioned in the gap between a discharge end of one conveyor having a drive unit and the infeed end of another conveyor, comprising:

- a frame;
- 5 a drive structure supported by the frame;
- a bed supported by the frame;
- first and second idler structures supported by the frame;
- an endless belt or chain extending in an operative position along the bed and around the idler structures and drive structure and forming a T-shaped path including a return run having a first generally horizontal portion,
- 10 a non-horizontal portion, and a second horizontal portion; and
- a tensioner for tensioning the belt or chain;
- wherein the first idler structure guides the belt or chain from the first horizontal portion of the return run to the non-horizontal portion, and the
- 15 second idler structure guides the belt or chain from the non-horizontal portion to the second horizontal portion.

32. The conveyor according to claim 31, wherein the tensioner includes a constant force spring for urging each end of the first idler structure toward the other idler structure, which is fixedly mounted.

33. The conveyor according to claim 31, wherein the tensioner includes a retaining plate or cover for covering the constant force spring, the retaining plate or cover having a first, oversized opening for receiving and allowing the first idler structure to move into engagement with the belt or

5 chain as a result of the urging force supplied by the constant force spring and a second opening for receiving and fixing the position of the second idler structure.

34. The conveyor according to claim 33, wherein the positions of the constant force spring and the retaining plate are reversible such that the first idler structure is fixed in the second opening and the second idler structure is movable in the first opening.

35. The conveyor according to claim 31, wherein the tensioner comprises a pair of spaced arms mounted for pivoting movement, each including a finger at one end for engaging the idler structure and a weight at the opposite end for causing the arms to pivot such that the finger urges the
5 idler structure toward the adjacent chain.

36. A conveyor for intended use in positioning in a gap between the ends of first and second adjacent conveyors, comprising:

a bed assembly including an endless belt or chain, a bed for supporting the endless chain, a drive structure for driving the chain relative
5 to the bed, and first and second idler structures for assisting in guiding the chain, at least one of the drive or idler structures being movable for tensioning the belt or chain; and

a base adapted for attachment to an end of one of the first and second adjacent conveyors for supporting the bed assembly;

10 wherein the bed assembly may be bodily lifted from the base without removing or slackening the chain.

37. In a conveyor system for articles including a first conveyor having a feeding portion and a second conveyor having a receiving portion and a frame between the feeding and receiving portions, the improvement comprising:

5 a transfer conveyor for feeding articles along the system spanning between the conveyor portions, the transfer conveyor including a conveyor chain or belt driven in an endless path and defining a conveying surface for moving the articles from the feeding portion to the receiving portion, the transfer conveyor freely resting by gravity on the frame and
10 substantially fully releasable therefrom;

 whereby in the event of an article jam or the like, the transfer assembly may be bodily lifted and released.

38. The transfer conveyor in a conveyor system of claim 37, wherein the frame comprises a base including a pair of U-shaped cutouts for receiving the ends of a driven shaft of the transfer conveyor.

39. The transfer conveyor in a conveyor system of claim 38, wherein the frame further comprises a pair of notches for receiving detents associated with the transfer assembly.

40. The transfer conveyor in a conveyor system of claim 38, further comprising:

 a pair of spaced side frame members;
 a drive structure supported by the side frame members;
5 a bed supported by the side frame members;
 a pair of idler structures supported by the side frame members;

a tensioner including a pair of spaced arms mounted for pivoting movement relative to the frame members, each including a finger at one end for engaging the idler structure and a weight at the opposite end for causing the arms to pivot such that the fingers urge the idler structure into engagement with the chain.

41. The transfer conveyor in a conveyor system of claim 37, further including a slave drive for transmitting rotational motion from a drive unit associated with the first or second conveyor to a drive structure for driving the belt or chain associated with the transfer assembly, whereby the need for a separate drive unit associated with the transfer conveyor is eliminated.

42. A conveyor for intended use in positioning in a gap between the ends of first and second adjacent conveyors and including an endless belt or chain, comprising:

a frame;
a bed supported by the frame for supporting the chain;
a drive structure supported by the frame for driving the chain;
first and second idler structures supported by the frame for guiding the chain;

a tensioner including a pair of spaced arms mounted for pivoting movement relative to the frame, each including a finger at one end for engaging the idler structure and a weight at the opposite end for causing the arms to pivot such that the fingers urge the idler structure toward the adjacent chain;

whereby the engagement with the drive structure serves to tension the belt or chain in the conveyor.